

REMARKS

I. Introduction

Claims 1-14 are pending in the present application after the addition of claims 13 and 14. Claim 1 has been amended. In view of the foregoing amendments and the following remarks, it is respectfully submitted that the pending claims are allowable, and reconsideration is respectfully requested.

Applicant notes with appreciation the acknowledgement of the claim for foreign priority, as well as the indication that all certified copies of the priority documents have been received. Applicant also notes with appreciation the acceptance of drawings which were previously submitted.

II. Rejection of Claims 1-3 and 5-11 under 35 U.S.C. § 103(a)

Claims 1-3 and 5-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,176,973 ("Takada") in view of U.S. Patent No. 6,556,349 ("Cox"). Applicant respectfully submits that the rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine the reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The prior art must suggest combining the features in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296; In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent

that the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Independent claim 1 has been amended to recite, in relevant parts, “said plurality of imaging units are two-dimensionally arranged in rows and columns, with an optical axis of each imaging unit defined as an axis through a common object point at an imaging position and the center of each imaging lens, said common object point and each imaging device are located at a conjugate position, and said illumination device is positioned in such a way as to direct illumination light in a direction along the optical axis of each imaging unit.” The above-recited amended language of claim 1 is fully supported by the original Specification. For example, page 7, lines 14-18 of the Specification (referencing Fig. 4) indicate the following: “As the pupil P of the viewer is in alignment with that conjugate position, the imaging lens 1 is in focus with the pupil P of the eyeball E. In other words, an image P’ of the pupil P of the eyeball E is formed on the imaging device 3.” In addition, page 10, lines 2-7 of the Specification indicate that the optical axis of each imaging unit is defined as a straight line passing the center of each imaging lens and the center of the pupil P of the eyeball E. It follows that the center of the pupil P of the eyeball E is the common object point, as recited in amended claim 1. Therefore, it is absolutely clear that the Specification clearly discloses the claimed arrangement that “said common object point and each imaging device are located at a conjugate position.”

The subject matter of the present invention involves dividing the fundus of the eye into minute areas, and the images of the respective minute areas are taken by two-dimensionally arranged imaging units each comprising an imaging lens and an imaging device located on its image plane, so that a fundus image (retinal image) is synthesized from the respectively taken images. In this regard, as recited in claim 1, with the optical axis of each imaging unit defined as an axis through a common object point at an imaging position and the center of each imaging lens, said common object point and each imaging device are located at a conjugate position, and there is an illumination device for a subject positioned in such a way as to direct illumination light in a direction along the optical axis of each imaging unit. In the present

invention recited in claim 1, the feature that “said common object point and each imaging device are located at a conjugate position” ensures that as the pupil of the viewer is in alignment with that conjugate position, it permits the bright pupil’s image to be formed on the imaging plane of each imaging device.

In support of the rejection, the Examiner contends that Takada teaches the claimed “common object point” limitation. While Takada discloses an iris camera module for taking an eyeball’s iris image, which module includes an imaging unit having an axially positioned imaging device and imaging lens, as well as illumination, Takada clearly does not teach the claimed “common object point” limitation; instead, Takada merely shows that an iris image is taken as a set of image points corresponding to object points defined by various areas of the iris, which disclosure indicates nothing of the presence of the claimed “common object point” limitation, i.e., the limitation that “said common object point and each imaging device are located at a conjugate position.”

In addition to the above, the secondary Cox reference similarly fails to teach or suggest the claimed limitation that “said common object point and each imaging device are located at a conjugate position.” Cox discloses an optical system having a fore optic and an array of optoelectronic devices, and to compensate for curvature-of-field aberration (“non-planar focal field of the fore optic”), a micro lens is located between the optoelectronic devices and the fore optic. Cox disclose (in connection with Figs. 3 and 4) an embodiment in which, with an object point defined by an image point formed by the fore optics 4 at a varying position, viz., an image point at a varying position on the image plane 20 defined by the field of curvature, each micro lens reforms it on each optoelectronic device on the field of curvature. However, there is clearly no suggestion of the claimed “common object point” corresponding to each image point formed on each optoelectronic device, let alone any suggestion that “said common object point and each imaging device are located at a conjugate position.”

In view of the foregoing, the overall teachings of Takada and Cox clearly cannot render obvious claim 1 and its dependent claims 2-3 and 5-11.

III. Rejection of Claim 4 under 35 U.S.C. § 103(a)

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,176,973 ("Takada") in view of U.S. Patent No. 6,556,349 ("Cox"), as applied to claim 1 above, and further in view of U.S. Patent No. 5,751,836 ("Wildes"). Applicant respectfully submits that the rejection should be withdrawn for at least the following reasons.

Claim 4 depends on claim 1. As discussed above in connection with claim 1, Takada and Cox do not teach or suggest the limitation that "said common object point and each imaging device are located at a conjugate position." In addition, Wildes similarly fails to teach or suggest the limitation that "said common object point and each imaging device are located at a conjugate position." Accordingly, the overall teachings of Takada, Cox and Wildes do not render obvious claim 1 and its dependent claim 4.

IV. Rejection of Claim 12 under 35 U.S.C. § 103(a)

Claim 12 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,176,973 ("Takada") in view of U.S. Patent No. 6,556,349 ("Cox"), as applied to claim 1 above, and further in view of U.S. Patent No. 5,886,780 ("Fukuma"). Applicant respectfully submits that the rejection should be withdrawn for at least the following reasons.

Claim 12 recites "an imaging system as recited in claim 1." As discussed above in connection with claim 1, Takada and Cox do not teach or suggest the limitation that "said common object point and each imaging device are located at a conjugate position." In addition, Fukuma similarly fails to teach or suggest the limitation that "said common object point and each imaging device are located at a conjugate position." Accordingly, the overall teachings of Takada, Cox and Fukuma do not render obvious claim 1 and its dependent claim 12.

V. New Claims

Claims 13 and 14 have been added. Support for the subject matter of claim 13 may be seen, e.g., on page 9, lines 21-22 of the Specification, which indicate that the "respective

imaging units 10₁, 10₂, 10₃ and so on have much the same construction.” Since each imaging unit is constructed from an imaging device and an imaging lens, it is quite clear from the disclosure of page 9, lines 21-22 of the Specification that the respective imaging lenses are the same. Support for the subject matter of claim 14 may be seen, e.g., on page 18, lines 19-25 of the Specification: “the imaging lenses 1₁, 1₂, 1₃ and so on and the imaging devices 3₁, 3₂, 3₃ and so on are arranged on a concentric spherical surface (three-dimension) or a concentric cylindrical surface (two-dimension) with the pupil P of the eyeball E as the center, as shown in Fig. 13. This ensures that at all the imaging units 10₁, 10₂, 10₃ and so on, the optical axes 2₁, 2₂, 2₃, etc. thereof are in alignment with the center axes of the imaging lenses 1₁, 1₂, 1₃ and so on.”


Claims 13 and 14 are deemed to be in allowable condition by virtue of their dependence on allowable claim 1.

VI. Conclusion

It is therefore respectfully submitted that pending claims 1-14 are now in allowable condition. All issues raised by the Examiner have been addressed, and an early and favorable action on the merits is solicited.

Respectfully submitted,

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